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PREVALENCE OF COVID-19 BASED ON VARIOUS PRAKRITI, THE HUMAN CONSTITUTION TYPES OF INDIAN TRADITIONAL MEDICINE: A CROSS SECTIONAL STUDY

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ABSTRACT

Background: Tridosha and Prakriti are the core principles of Ayurveda. These principles help to guide for predictive, preventive and personalized management of diseases. Doshas are the originator of Prakriti and simulate genotypic configuration of the embryo. Prakriti helps in understanding a particular individual with respect to one's physique, physiology and psychology. DuringCovid-19 pandemic, clinical profiling of Covid-19 positive patients based on their Prakriti will aid in its management. This study was carried out to estimate the prevalence of covid-19 among various Prakriti types. **Material and Methods:** This was a cross sectional study conducted among 50 covid-19 positive patients at Covid Health Centre (CHC), New Delhi. A validated self-assessment questionnaire for determining Prakriti was used for categorizing patients based on Prakriti. Clinical profiles of the patients were also noted. Prakriti was considered as primary outcome variable. Data was analysed by using coGuide software, V.1.03. **Results:** The mean age of the study participants was 45.42±19.14 years, 29(58.00%) were men and 21(42.00%) were women, 5 out of 50(10.00%) had diabetic mellitus. The mean saturation of peripheral oxygen (SPO2) was 98.32±0.98%, the mean pulse rate was 87.72±5.91 per minute. 15(30%) patients belonged to shleshma Prakriti. The prevalence of Prakriti in order of frequency were Vatala-shleshma 11(22.00%), Pittaka-shleshma 10(20.00%), triodoshaja 9(18.00%), Vata 4(8.00%) and Pittala 1(2.00%). **Conclusion:** The prevalence of covid-19 was found more in Patients with Shleshma, Vata and Pitta-Shleshma dominant Prakriti. The treatment strategies can be planned as per each patient.

KEY WORDS: Prakriti, Ayurveda, COVID-19, Clinical Features, Prevalence.

INTRODUCTION:

There is an interplay between genetic, epigenetic, and environment-induced changes in the DNA sequences, leading to significant phenotypic variations [1]. The post-human genome era embarked on several major international projects. Subsequently, their databases such as Human Genome Project, Genome-Wide Association Studies, human ENCODE consortium, dbSNPs, dbCNVs, HapMap have all contributed significantly to the understanding of the position, degree, nature, and structure of DNA and its contributions to several phenotypes as well as diseases. The basic principle of personalized medicine is formed based on the variation of each individual in respect to their anatomical, physiological, immunological, psychological, disease susceptibility, disease prognosis, and response to treatment. These variations are diverse, and efforts are being made to classify humans based on geographical origin, ethnicity, race, and other factors [2–4]. Ayurveda, an Indian traditional system of medicine, considers every individual as unique, and the treatment is based on the defined constitution types. An essential feature of the theory and practice of Ayurveda is the classification of human beings into three doshas (Vata, pitta, and Kapha) and their mixed constitutional types called Prakriti. As per the texts of Charaka and Susruta, the Prakriti type of a person is fixed at the time of conception itself and is expressed through various physical, psychological, immunological, and behavioral traits [5–7]. Prakriti also influences the manifestation and course of diseases in an individual and, importantly, an individual's response to treatment [8–10]. Prakriti is the total of morphological, physiological, and psychological traits in human beings. A person's Prakriti has both genetic and acquired pieces; Shukra and shonita govern the genetic piece. The acquired piece develops via environmental factors like climate, season, time factor, age, race, and familial inheritance. Based on variations in these factors, seven kinds of Prakriti arises viz. (1) Vata Prakriti (2) Pitta Prakriti (3) Kapha Prakriti (4) Vata Pittaja (5) Vata-Kaphaja (6) Pitta-Kaphaja (7) Sama Prakriti. Qualitative and quantitative, unchangeable doshika predominance from birth to death is called Prakriti. Prakriti is a deciding factor in the prognosis and treatment of communicable and non-communicable diseases [11]. The diseases in man occur due to their susceptibility that depends upon their Prakriti [12]. COVID 19 is a new disease, where the status of the susceptibility of its victim in terms of Prakrit is not known. Hence, to fill this lacuna, this cross-sectional study was conducted. This study has attempted to estimate the prevalence of covid-19 among various Prakriti types of individuals with their symptoms and comorbid conditions.

MATERIALS AND METHODS:

This cross-sectional study was conducted at Covid Healthcare Centre (CHC), Ch. Brahm Prakash Ayurved Charak Sansthan (CBPACS), New Delhi, India. Fifty Covid-19 positive patients treated at the center of age 16 years or above were randomly selected in the study. Prakriti of the randomly selected covid-19 positive patients was determined using a validated self-assessment questionnaire to determine Prakriti after obtaining their written consent to participate in the study. The questionnaire was validated in the general population. The questionnaire was administered in English as the participants were fluent in English; Data were collected by face-to-face interview. Interviews were conducted in English. The dichotomous data of the patients were recorded in the form of "yes" or "no." with the question/statement. A particular score was also assigned to each question/statement in a separate column. If the response was yes, the assigned score was allotted, and for no response, zero was allotted. Based on the formula encrypted in the questionnaire, final percentage scores for dosha were used for Prakriti determination. Other clinical findings have also been recorded, e.g., influenza-like illness or comorbidity.

Statistical Methods:

Prakriti was considered as the primary outcome variable. Descriptive analysis was carried out by mean and standard deviation for quantitative variables, frequency, and proportion for categorical variables. Data was analyzed by using coGuide software, V.1.03.[13]

RESULTS:

A total of 50 patients were included in the final analysis.

The mean age was 45.42 ± 19.14 years ranged from 16 to 74 years, 29(58.00%) were men and 21(42.00%) were women; the mean weight was 61.16 ± 12.87 kg ranged from 28 to 88 kg. The mean height was 5.43 ± 0.29 feet ranged from 4.80 to 6 inches. Out of 50 participants, majority 32 (64.00%) were asymptomatic. 5 out of 50 (10.00%) had diabetic mellitus. (Table 1).

Table 1: Summary of baseline parameter (N=50)

Parameter	Summary
Mean Age (in years)	45.42 ± 19.14 (ranged 16 to 74)
Gender	
Men	29(58.00%)
Women	21(42.00%)
Weight (in Kg)	61.16 ± 12.87 (ranged 25 to 88)
Height (in feet's)	5.43 ± 0.29 (ranged 4.80 to 6)
Sign and Symptoms	
Asymptomatic	32(64.00%)
Cough	3(6.00%)
Cough & Breathlessness	1(2.00%)
Cough & loss of smell	1(2.00%)
Fever & cough	3(6.00%)
Fever & Headache	1(2.00%)
Fever & cough & Rhinitis	1(2.00%)
Rhinitis	3(6.00%)
Rhinitis & Cough	1(2.00%)

Rhinitis & Fever	1(2.00%)
Rhinitis & Sore throat	1(2.00%)
Sore throat	2(4.00%)
Comorbidity	
Diabetic mellitus	5(10.00%)
Hypertension	2(4.00%)
Hypertension & Diabetic mellitus	4(8.00%)
Hypertension & Diabetic mellitus & Heart blockage	1(2.00%)
No comorbidity	38(76.00%)

Table 2: Summary of vital parameter and Prakriti (N=50)

Parameter	Summary
Vital parameter	**Mean ± SD**
Spo2(%)	98.32 ± 0.98(Ranged 95 to 99)
Pulse Rate (Minute)	87.72 ± 5.91(Ranged 72 to 100)
Temperature (°F)	97.92 ± 0.81(ranged 96 to 100)
Prakriti	N (%)
Vatala	4(8.00%)
Pittala	1(2.00%)
Shleshma	15(30.00%)
Vatala- Pittala	0(0.0%)
Vatala-Shleshma	11(22.00%)
Pittala-Shleshma	10(20.00%)
Tridoshaja	9(18.00%)

The mean SPO2 was 98.32±0.98 % ranged from 95 to 99 %, the mean pulse rate was 87.72±5.91 minutes ranged from 72 to 100 minutes and the mean temperature was 97.92±0.81°F ranged from 96 to 100 °F. Most patients belonged to Shleshma Prakriti 15(30%), no patients belonged to Vatala- Pittala Prakriti. (Table 2).

Table 3: Prakriti wise distribution of symptomatic, asymptomatic and comorbid condition of the patient's (N=50)

Sr. No.	Prakriti	Symptomatic N (%)	Asymptomatic N (%)	Co-morbidity(N=12)	
				Present N (%)	Absent N (%)
1	Vatala	1 (2.00%)	3 (6.00%)	0 (0.00%)	0 (0.00%)
2	Pittala	0 (0.00%)	1 (2.00%)	0 (0.00%)	0 (0.00%)
3	Shleshma	4 (8.00%)	11 (22.00%)	4 (8.00%)	9 (18.00%)
4	Vatala-Pittala	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)
5	Vatala-Shleshma	7 (14.00%)	4 (8.00%)	0 (0.00%)	0 (0.00%)
6	Pittala-Shleshma	4 (8.00%)	6 (12.00%)	2 (4.00%)	8 (16.00%)
7	Tridoshaja	2 (4.00%)	7 (14.00%)	4 (8.00%)	5 (10.00%)

Most symptomatic patients were of Vatala-Shleshma Prakriti 7(14.00%) type followed by Shleshma Prakriti 4(8.00%) and Pittala-Shleshma Prakriti 4(8.00%) type. Most asymptomatic patients were of shleshma Prakriti 11(22.00%) type followed by Tridoshaja Prakriti 7(14.00%) and Pittala-Shleshma Prakriti 6(12.00%) type. Out of 50 patients, 12 had Comorbid condition. Comorbidity was dominantly present in Tridoshaja Prakriti 4(8.00%) and Shleshma Prakriti 4(8.00%). Most patient of Shleshma Prakriti 9(18.00%) type had no comorbidity followed by Pittala-Shleshma Prakriti 8(16.00%). (Table 3).

DISCUSSION:

The present study intends to understand whether symptoms of the covid-19 patient are related to Prakriti. A cross-sectional study was designed, and data were collected from 50 patients on demography, body type constitution, comorbid condition, and symptoms of covid-19 diseases. The data was analyzed by using coGuide software, V.1.03. using tools, namely descriptive statistics, and presented. The concept of Prakriti is unique to Ayurveda, which is used for deciding the preventive and curative strategy to be adopted in the treatment of patients. It is the total of an individual's anatomical, physiological, and psychological domains. The diseases often manifest by susceptibility that depends upon the Prakriti of individuals. Covid-19 is a new disease, where the status of the susceptibility of its victim in terms of Prakriti is not known. Hence, to fill in this lacuna, this study was conducted.

The current guidelines classify covid-19 patients into their disease intensity as mild, moderate, severe, and critically ill categories. The severity of the disease is dependent on the immunity (Bala) of the individuals. The immune system occurs in innate, acquired, and artificially induced forms, and it deals with the body's response towards antigens and determines whether it is self-component or not. It protects the body from infections through various lines of defense.

Lymphopenia has been used as one of the effective predictors of prognosis. Elevation of pro-calcitonin levels, serum ferritin levels, LDH, SGPT, bilirubin, and SGOT, along with low serum level of albumin, are the other factors being considered. These altered biochemical profiles are also correlated with comorbidities such as diabetes, obesity, asthma, etc [14].

Sethi et al. have reported significant variation in biochemical profiles between three Prakriti types (otherwise within normal laboratory range [9]. In another study, alkaline phosphatase, SGPT, and SGOT levels were higher in Pitta Prakriti. Kapha Prakriti showed higher serum levels of triglyceride, cholesterol, lipoprotein, creatinine, and urea. Vata Prakriti showed higher levels of serum proteins (albumin, globulin) [15].

The concept of immunology has been known since the ancient period. Acharyas have mentioned the Vyadhikshmatva (the tendency of the body to fight against diseases), which plays a vital role in recovering from any disease. The bala (strength) of a person is essential in maintaining health and keeping life free from diseases. In the classical text, three types of bala have been described Sahaj, Karaj, and yuktikrit. A person endowed with pravar sahaj bala may have mild symptoms of covid-19. The present study contributes to the literature that provides the susceptibility of covid-19 disease in terms of Prakrit. Prakriti is one of the components among dashvidha pariksha bhava for an accurate understanding of Vyadhi. Kapha predominant individuals have better synergistic/stable immune response; predominant pitta individuals have better intense immune response/ exaggerated inflammation, vata predominant individuals have down-regulated immune mechanism/lower immune response. Ayurveda advocates personalized medicine according to the Prakriti of the individuals.

We found that covid-19 patients were from mild to moderate in this study. The mean age of the patients was about 45 years. 58% were men, and 42% were women. 64% of patients were asymptomatic, and 36% were symptomatic. Maximum patients had symptoms of fever, cough, and cold. Only twelve patients out of fifty enrolled in the study had the comorbid condition. They were mainly of Shleshma Prakriti and tridoshaj type. The attributes of immunity explained in Ayurveda have similarities with attributes determining Shleshma Prakriti. So, it provides better immunity power to fight against diseases. Large-scale clinical studies are required to assess the relationship between Prakriti, genomics, phenotypic markers for disease progression, immune response, and therapeutic response are recommended in the future.

CONCLUSION:

Prakriti-based stratification of clinical features of COVID-19 can be a useful tool for predicting prognosis and planning an effective therapeutic strategy. Therefore, Ayurveda based phenotyping may offer an effective and robust, clinical prediction approach for prevention, control and personalized management of the COVID-19 crises.

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